



# Move and Match for Memorization

## An Academic Team Challenge

Geometry Sets

Polygons

Lines

Angles and Triangles

Remember the old concentration game? It's a card game in which all of the cards are laid face down on a surface and two cards are flipped face up on each turn. The object of the game is to find pairs of matching cards. This game works the same way, except that participants work collaboratively in teams, using both teambuilding skills and matching strategies along with physical activity.

These activities require the use of different skills from the team members: Students strong in content knowledge, students who work well collaboratively, students who can communicate effectively, and students with strong problem solving skills. This provides the potential for each student to be a factor in the accomplishments of their team, and for teammates to appreciate each other for their contributions.

**Objectives:**

To practice and memorize geometry terms and concepts, to learn how to communicate and work together as a team, to apply problem solving strategies and to build the classroom community

**Time:**

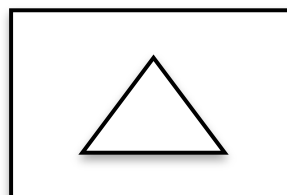
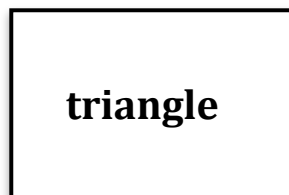
45-60 minutes

**Materials:**

Sets of Geometry Concentration cards printed on heavy paper, 1 set per team

Each geometry set addresses 8 different concepts. There are 3 types of Match Cards for each concept; a name card, a definition/description card and an illustration card, with a total of 24 cards in each set.

Example:



**Set Up:**

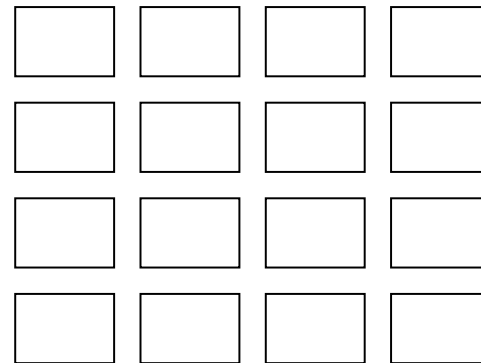
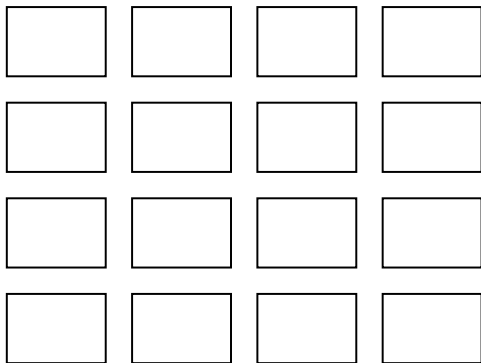
Decide which 2 of the 3 types of cards the students will be matching. Pull out those 2 types of cards to create the game boards. Keep the 3<sup>rd</sup> type for the second part of the activity. For example, use all of the names and illustrations for the game boards and keep the definitions in piles ready for the second part of the activity.

Teams of 4-6 should be created ahead of time and be comprised of students with different strengths and abilities. (Teams smaller than 3 or larger than 6 can hamper the teambuilding aspect of the game). For each team, layout a game board using 16 cards, 8 matches (see Game Board Layout below) and mark a boundary line approximately 15 feet from the game board.

**Game Board Layout:**

Create the game boards by randomly arranging 16 cards, 8 matches, text side down into 4 x 4 grids. Each team's grid will use the same cards but the cards will be arranged differently. Multiple game boards should be spaced apart so as not to interfere with movement of the different teams.

Example:



Note: With multiple teams and game boards, students will *assume* that this activity is a competition, which might affect their play, but although competition is not the goal, do **not correct** their assumptions. However, this is something that should be brought up and discussed as part of the whole class debrief.

## **Procedure:**

### **Introduce the Activity:**

*Say: Today we're going to participate in a team challenge that may be a little different than what you are accustomed to doing. You will be placed into teams and asked to complete a matching card game challenge. This game will require you to know or figure out the answers to some geometry questions.*

### **Explain the Rules:**

*Say: Each team will have the same cards, but the set up of each game board will be different. The object of the game will be to match all of the cards. The team needs to stand behind the boundary line. One person at a time will run up to the cards, turn two cards over and hold them up for the rest of the team to see from behind the boundary line. If they are a matching pair (e.g. written description of a triangle and an image of a triangle) then that player leaves them face up and turns over another two cards. If they don't match, that team member runs back behind the boundary marker and the next team member runs to the game board. When your team has turned over all the matched cards, raise your hands.*

### **Provide Team Planning Time:**

*Say: Talk in your teams and make a plan. Discuss what your team rotation will be and any game playing strategies that you want to try.*

### **The Activity:**

After each team decides what their rotation will be and any game playing strategies that the team wants to employ, begin the game. Once a team has turned over all the matches, give them the pile of missing match cards (either the name, definition or image cards) that were not used for the game board. The teams need to sort all of the cards, putting them together in matches of three.

**Facilitator Role During Activity:**

The facilitator's role is to guide the group through the task, maintain emotional and physical safety and allow the group to find their own solutions to problems they encounter. If you observe an issue that has the potential to threaten emotional or physical safety, that is the only time you need to intervene. This is a time to provide hints or suggestions that steer the group in a positive direction, but do not solve the problem. A good guideline is to give the group as much control of their own destiny as possible.

Be sure to note both the individual behaviors and group dynamics that you are seeing so that you can refer to them during the debriefing session.

Some of the barriers to look for that get in the way of productive groups are:

- Students who are left out or took themselves out of an activity
- Students are not listening to each other or being open to other's opinions
- A student is expected to "know" all of the answers
- A student thinks that they "know" all of the answers

**Debrief/Reflect:**

Using some of the questions from the **Debriefing Reflection Guide** document, have teams start to debrief before coming together as a whole class where they will then report out and do more reflection.

Sample processing questions:

- *How hard was it to stay behind the boundary line?*
- *Did other teams distract you?*
- *When you were turning the cards over, did it get confusing because more than one person was telling you what to do?*
- *Did you have a plan where different team members took on different responsibilities for remembering matches on the game board? If so, how did it work?*
- *Did any of your team members know the geometry facts really well? How important was that for your team?*
- *Did any of you learn new geometry facts?*

**Recognition:**

*Say: Think about what you did but also think about what everyone else did on your team. It is important to let people know if they helped and made a difference. Think of a person on your team that you felt helped your team. This is your opportunity to thank your teammate by letting them know what they did and how it helped your team.*

**Options:**

You can use the Matching Cards several ways:

1. Use two types of the matching cards during the game itself, and the remaining matching card for the team wrap-up. For example, first use the name and the illustration cards for the game board. After all of the cards have been turned over and matched, have the student team match the definition cards to gain extra points.
2. After students make their matches, ask students to write out definitions for the geometric terms and then let them check their definitions with those on the cards.
3. Randomly choose two matching cards from each concept. After the team makes their matches they need to create the missing matching cards.

# Academic Team Challenges

## Debrief and Reflection Guide

*"We do not learn from experience...we learn from reflecting on experience." ~ Dewey 1938*

When planning for an Academic Team Challenge, be sure to allow 10-15 minutes at the end for a whole group debrief and reflection. Have students sit in a circle where they can see, listen to, and respond to each other.

Debriefing questions should always be connected to both the behaviors observed and goals of the group. The following topics and sample questions are intended as guidelines. Choose and adapt a few questions to meet your needs. Keep in mind that the most important thing is that students leave with an understanding of how they contributed as an individual, how they worked as a team, what others thought and felt during the activity and how this activity is relevant to their lives.

**What?** *Lead with questions concerning the actual facts about the experience.*

### **About the Success of the Team**

Were you successful?

How do you know?

What does (success/not being successful) look like, feel like, sound like?

### **About the Planning**

How well did your team plan?

Did everyone understand the plan? How do you know?

Did the group practice the plan?

Was the plan carried out or did you change it as you went along? Why?

## **What? (continued)**

### **Concerning Communication**

Did your team communicate well? How do you know? What did good communication look like, feel like and sound like?

Did everyone feel that his/her ideas were heard? How do you know?

Were there any disagreements? How were they handled?

### **Involving Teamwork**

Did the group support one another in achieving the goal?

How did the group use each other's skills?

Did your team have any problems? How did the team handle the problems?

### **About the Observed Group Dynamics**

Use your observations of group dynamics to foster improved cooperative group behavior. Some of the barriers to look for that get in the way of productive groups are:

Students who are left out or took themselves out of an activity

Students are not listening to each other or being open to other's opinions

A student is expected to "know" all of the answers

A student thinks that they "know" all of the answers

### **Possible questions to ask:**

Did everybody feel like they were really a part of their team and that they were listened to?

Did everyone feel like they had an opportunity to share all of their ideas?

Did anyone notice that maybe everyone was not participating, contributing, being listened to?

**So What?** *Participants discuss their feelings, ideas, and analysis of the experience.*

How did doing this make you feel? Why?

Why do you think we did this?

What did you learn from doing this activity? What did you learn about yourself? What did you learn about others?

What did you like about learning this way? Why?

**Now What?** *How will they think or act in the future as a result of this experience?*

If you had a chance to do this activity again, what is one thing that you would do the same? What is one thing that you would change?

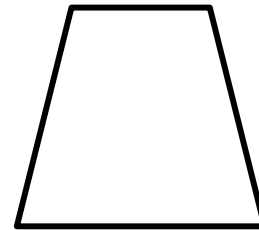
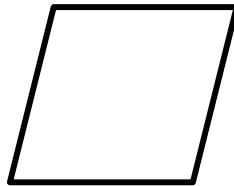
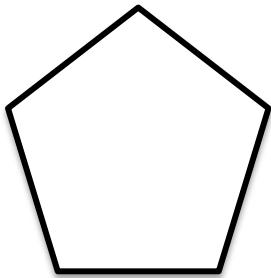
What else could be learned this way?

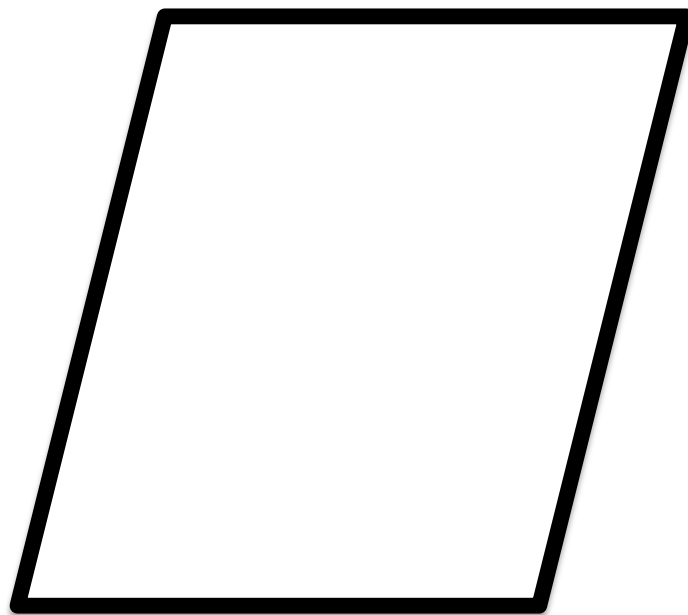
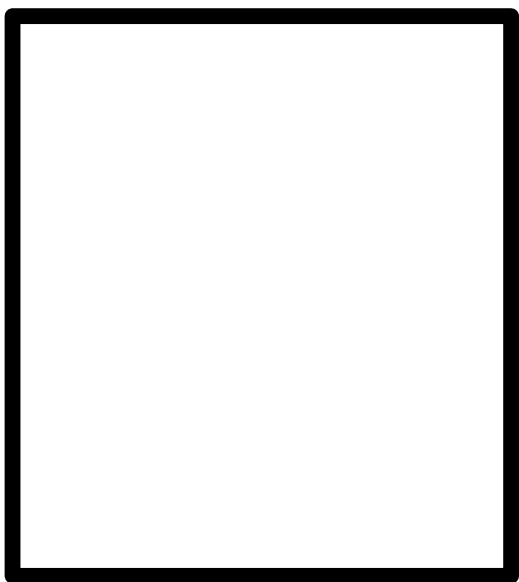
What did you learn or do today that might help you in some other part of your life?

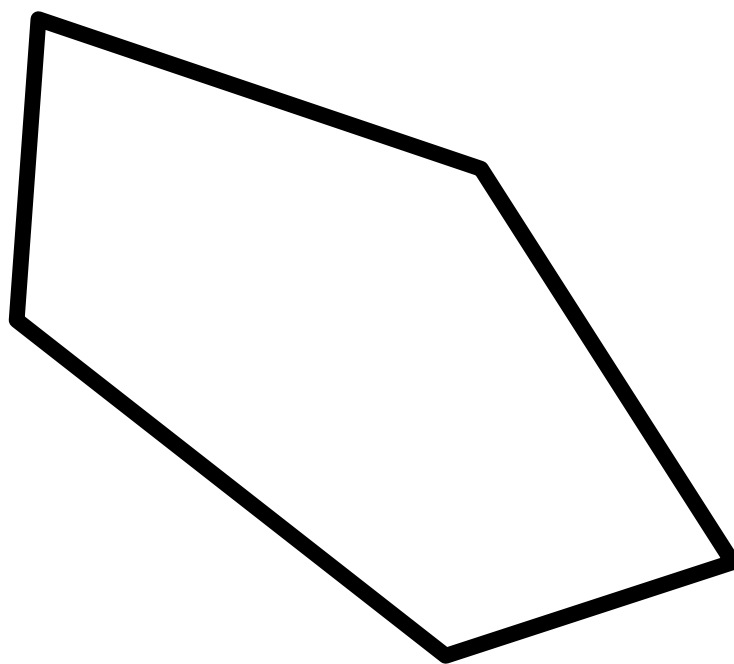
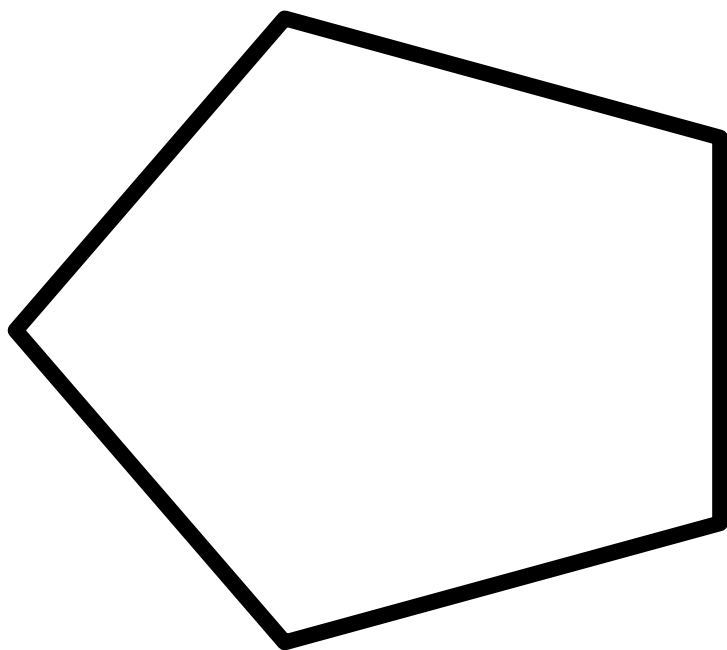
*If time allows it is helpful and productive to have the group redo the activity with their “new learning/understanding.”*

# Move and Match for Memorization

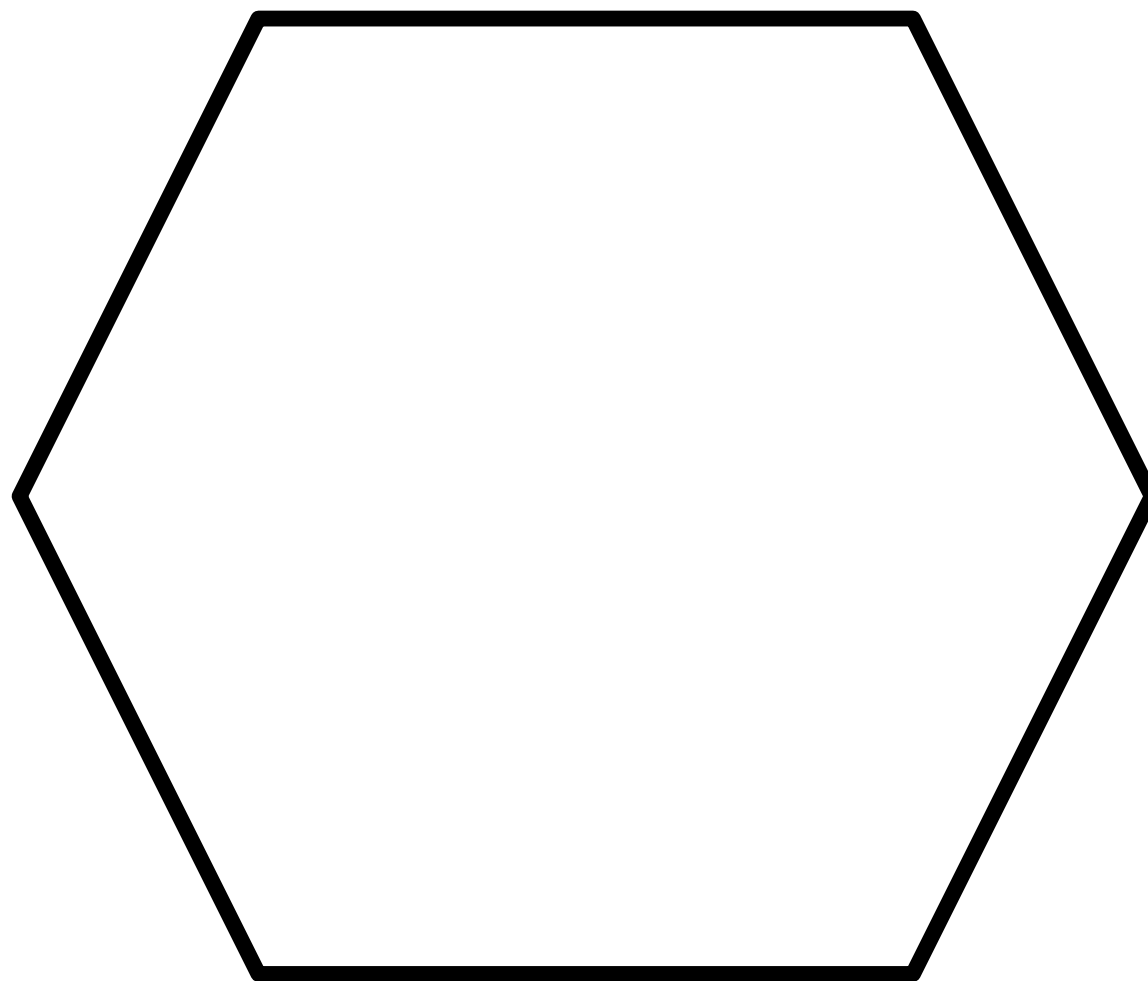
Geometry Set: Polygons

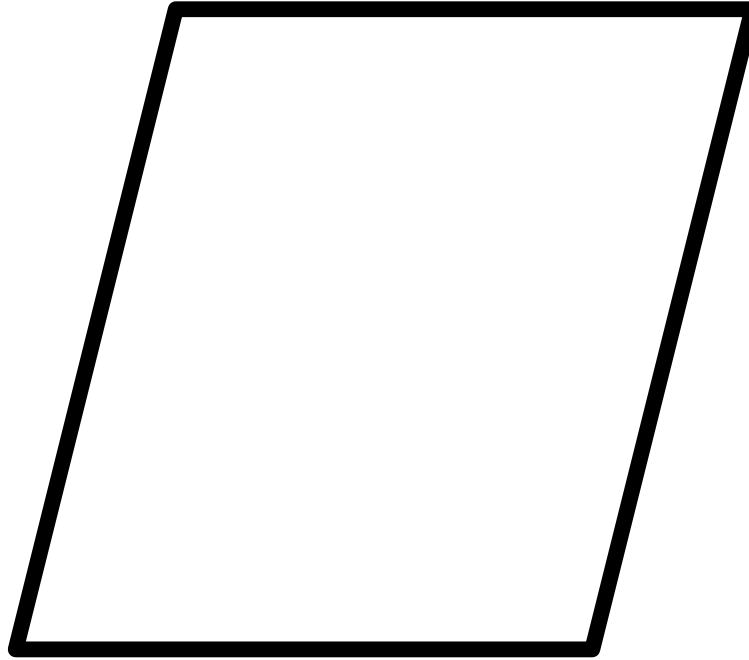
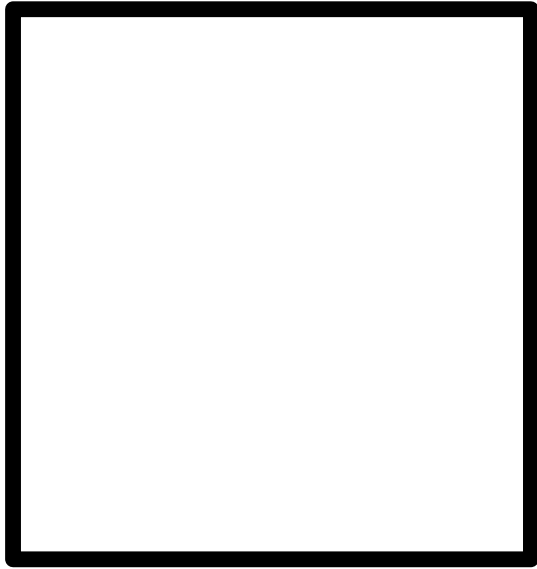


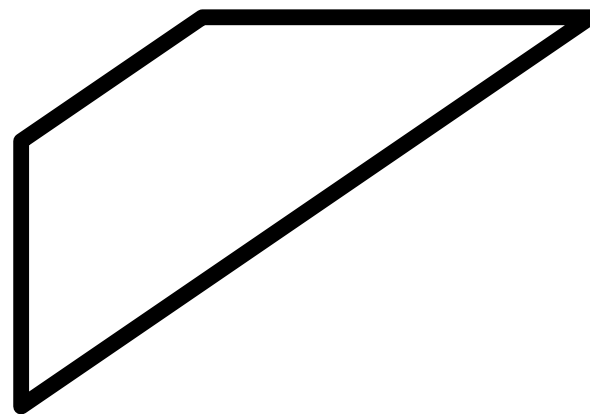
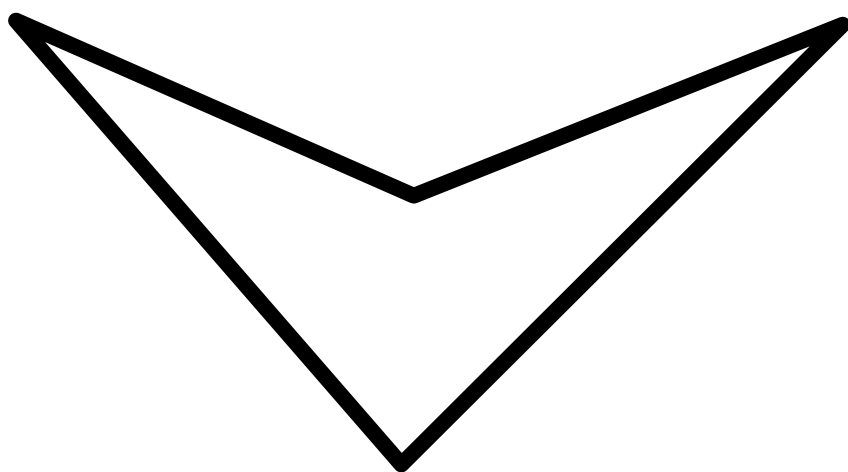
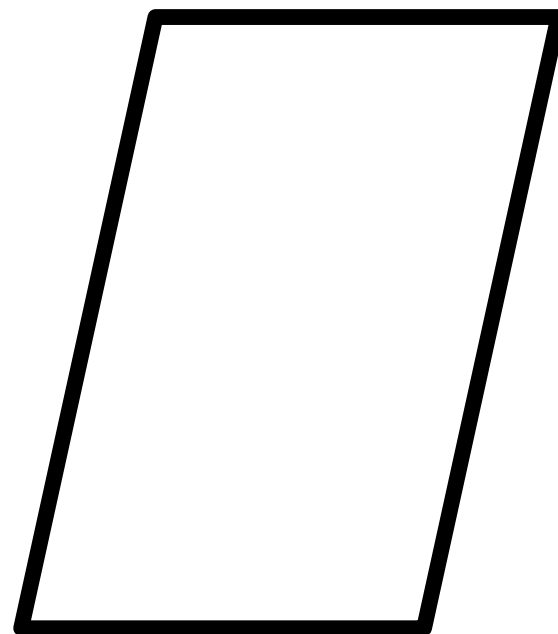
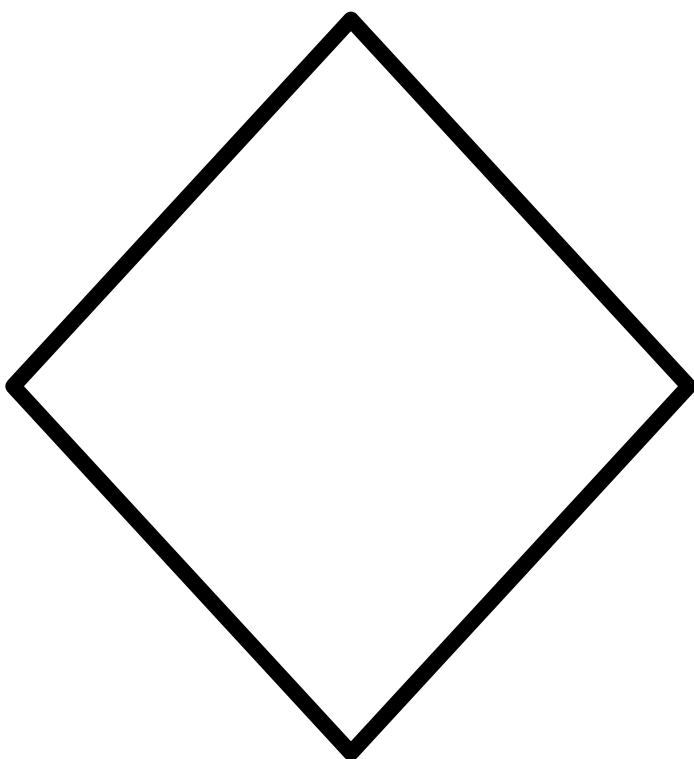


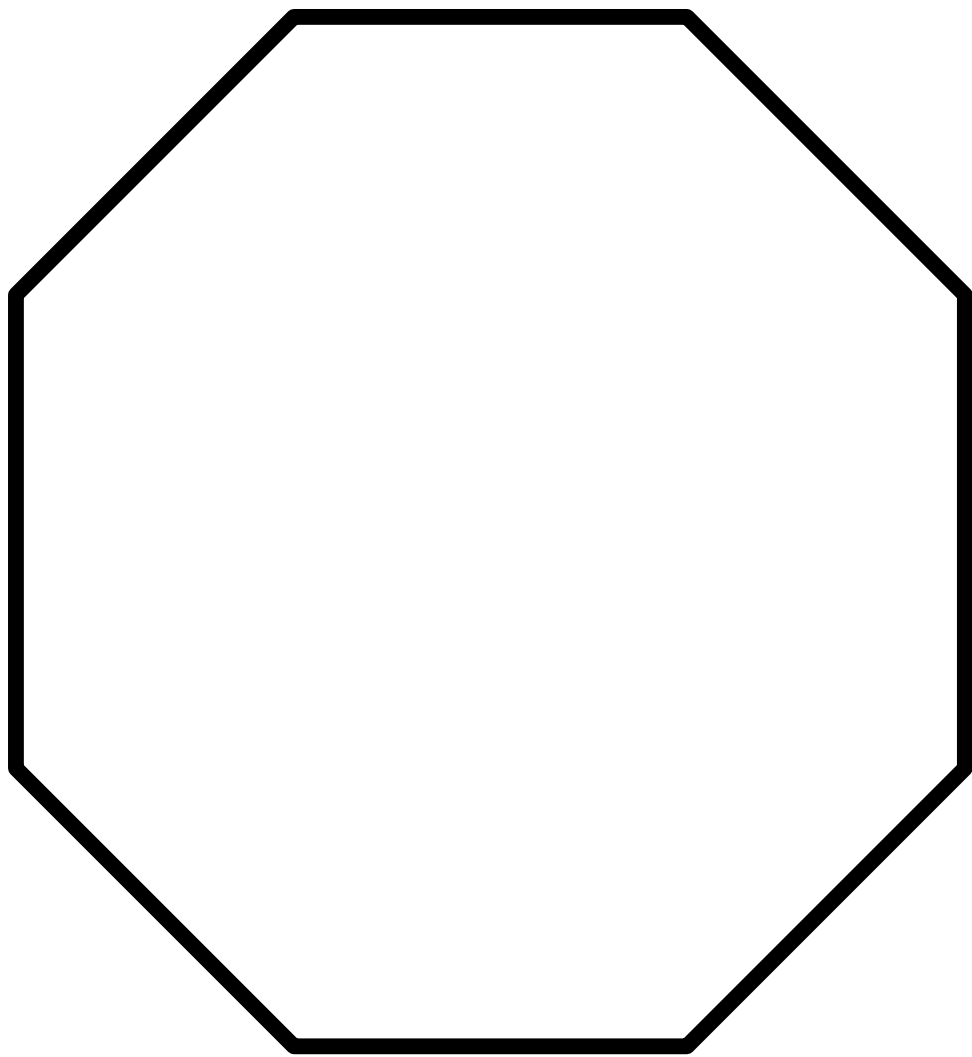


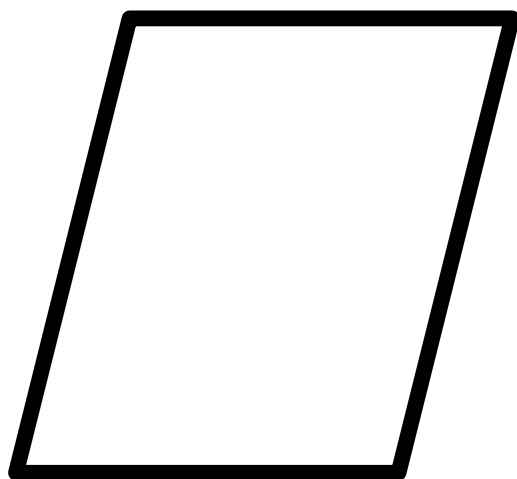
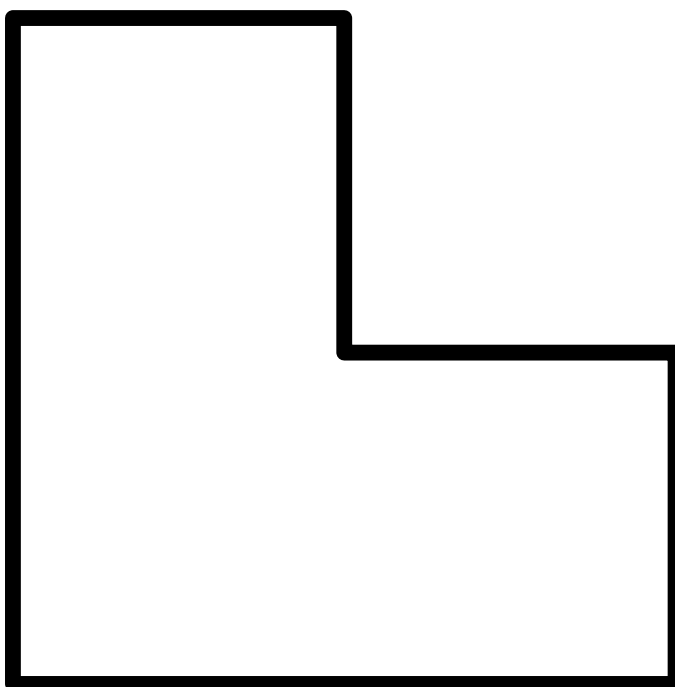
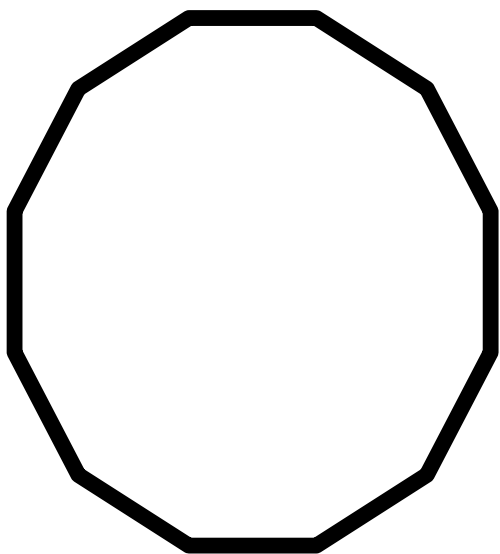












rhombus

a four-sided shape where  
all sides have equal length,  
opposite sides are parallel  
and opposite angles are  
equal

pentagon

a 5-sided polygon

trapezoid

a quadrilateral with  
one pair of opposite  
sides parallel

hexagon

a 6-sided polygon

parallelogram

opposite sides are  
parallel and equal in  
length, and opposite  
angles are equal

quadrilateral

a shape with four  
straight sides

octagon

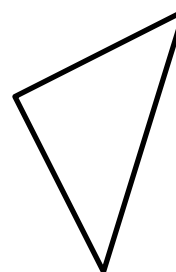
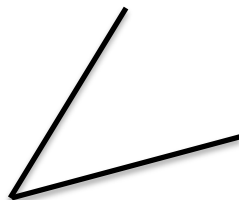
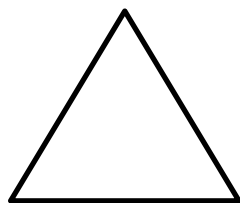
an 8-sided polygon

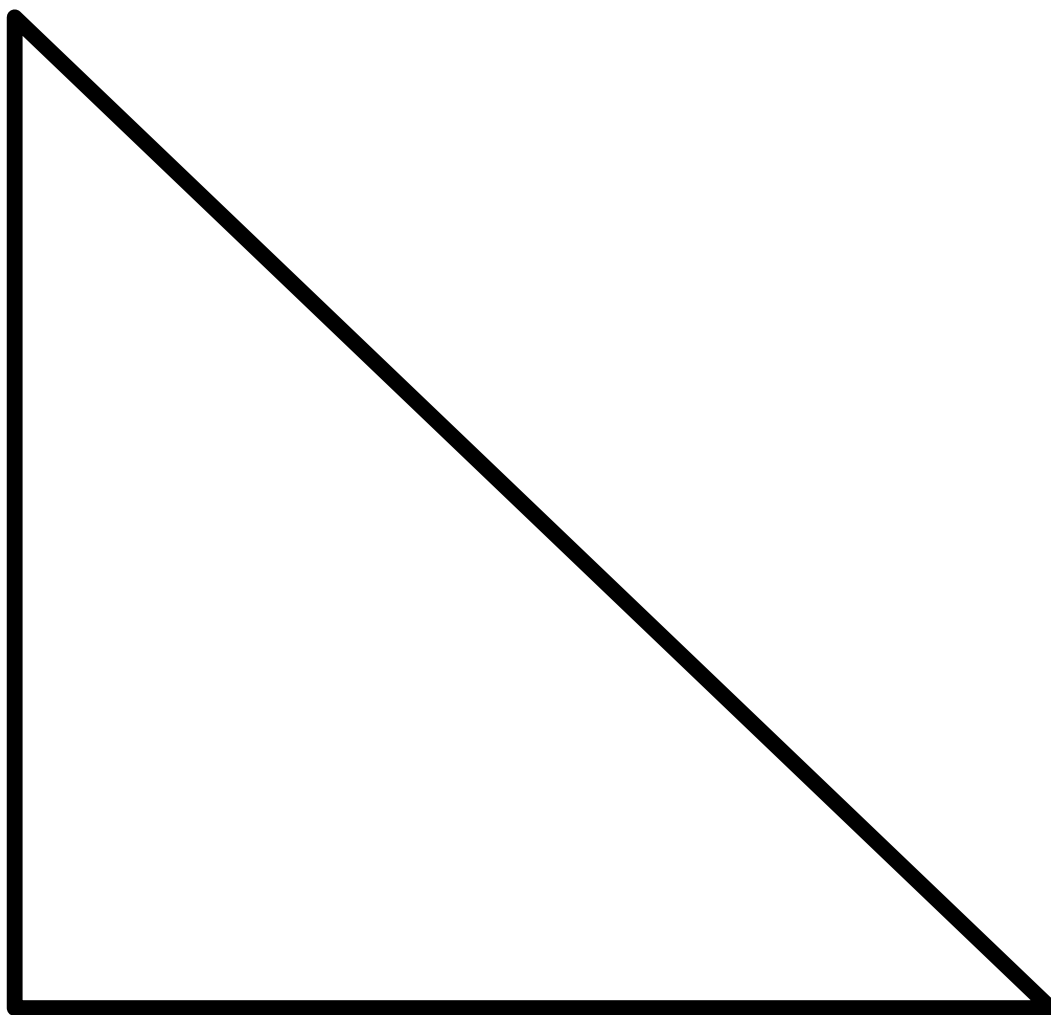
polygon

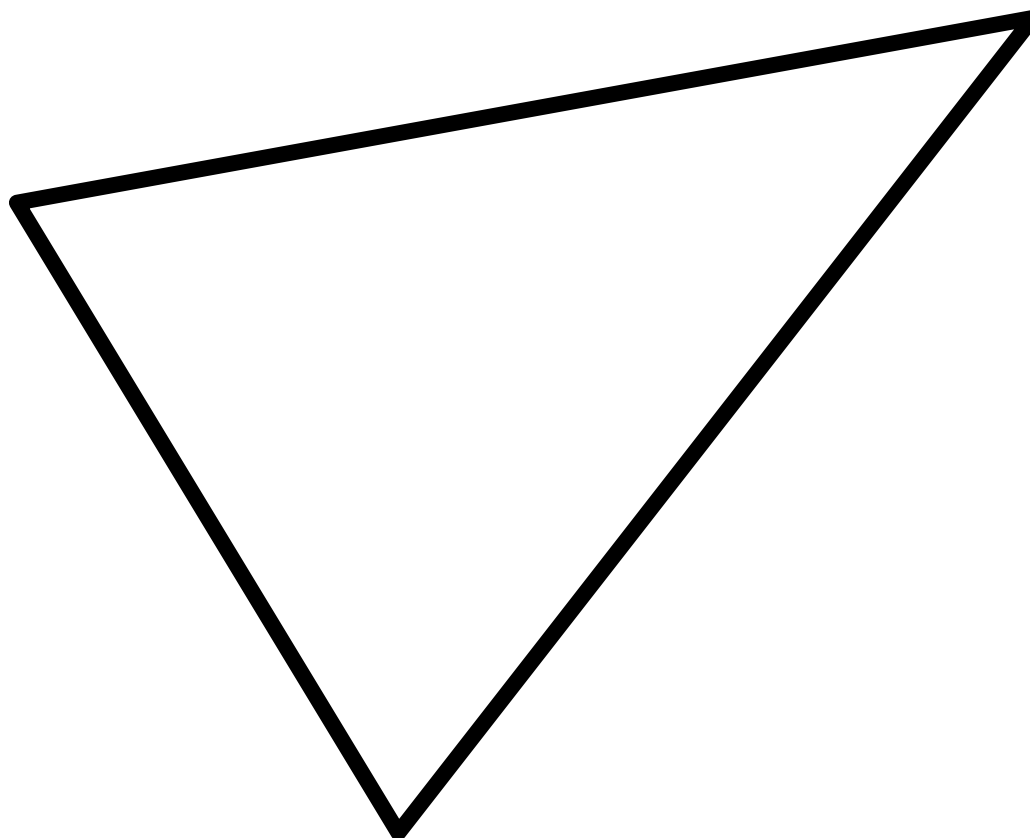
a two-dimensional  
shape with straight  
sides

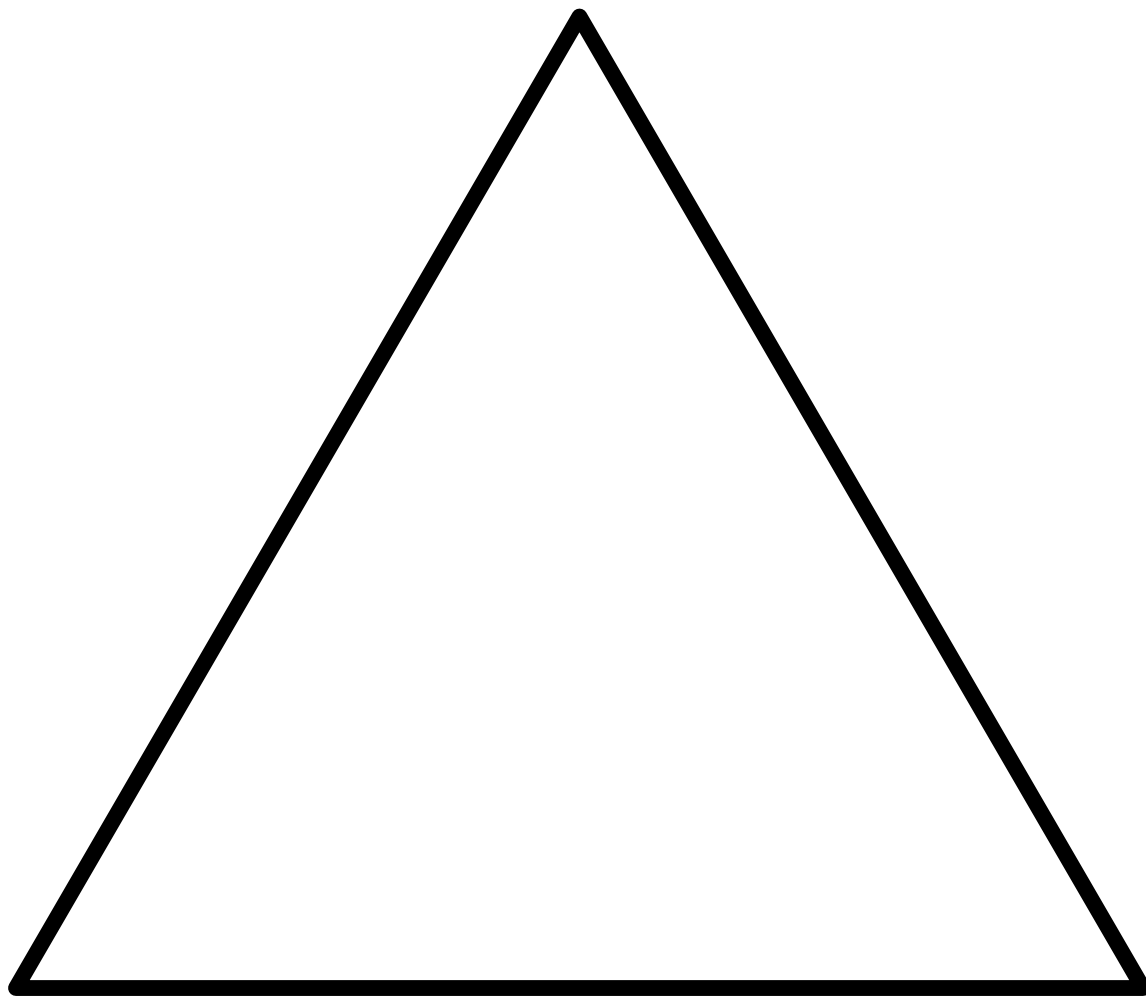
# Move and Match for Memorization

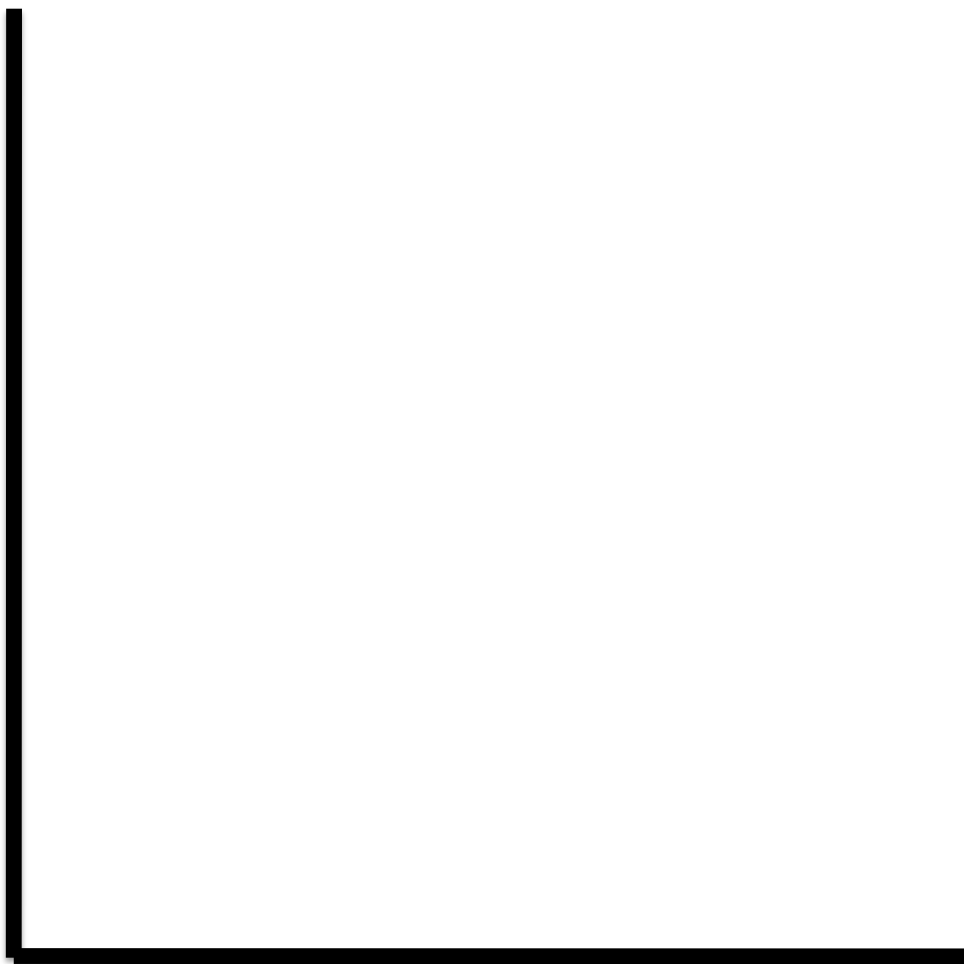
Geometry Set: Angles and Triangles

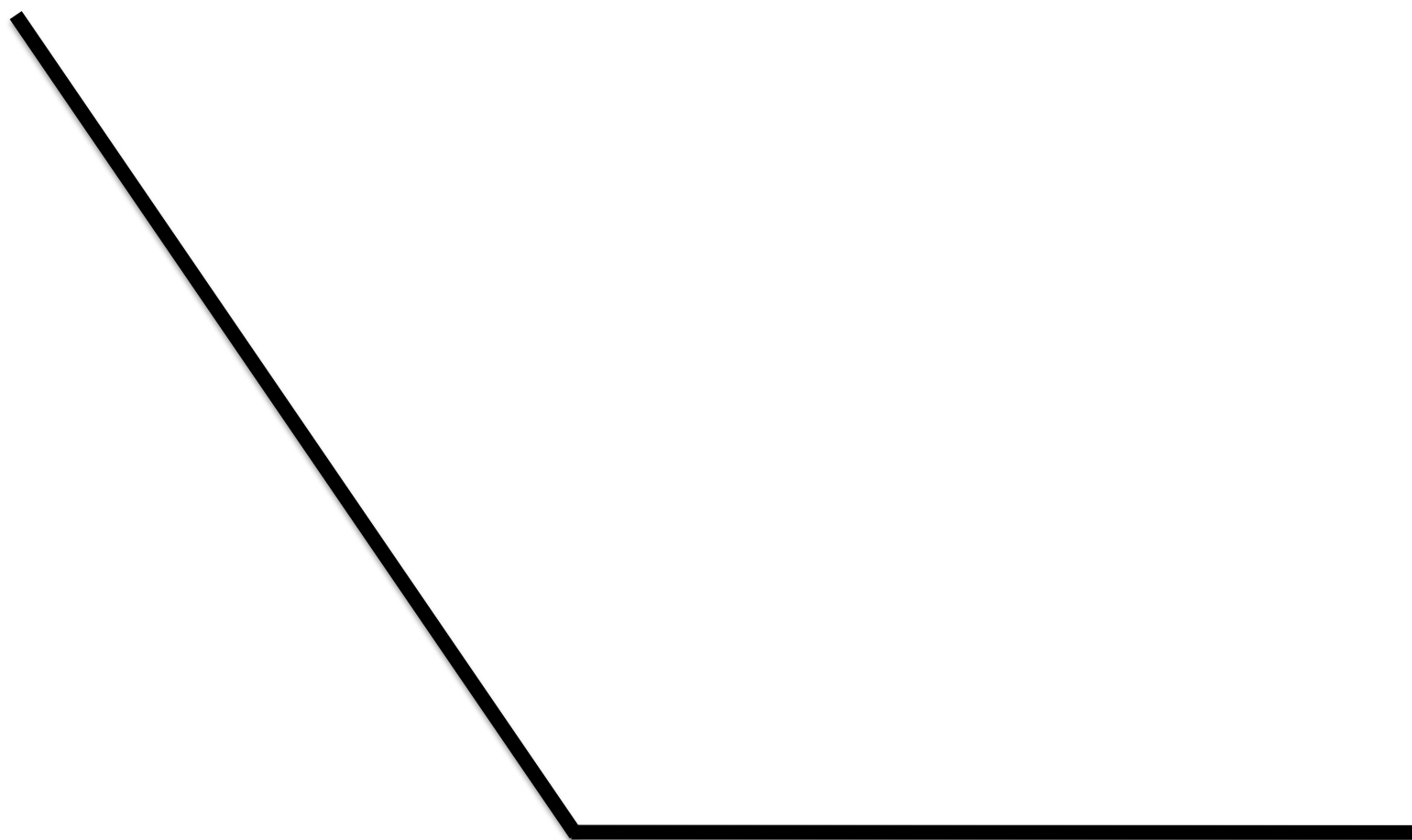


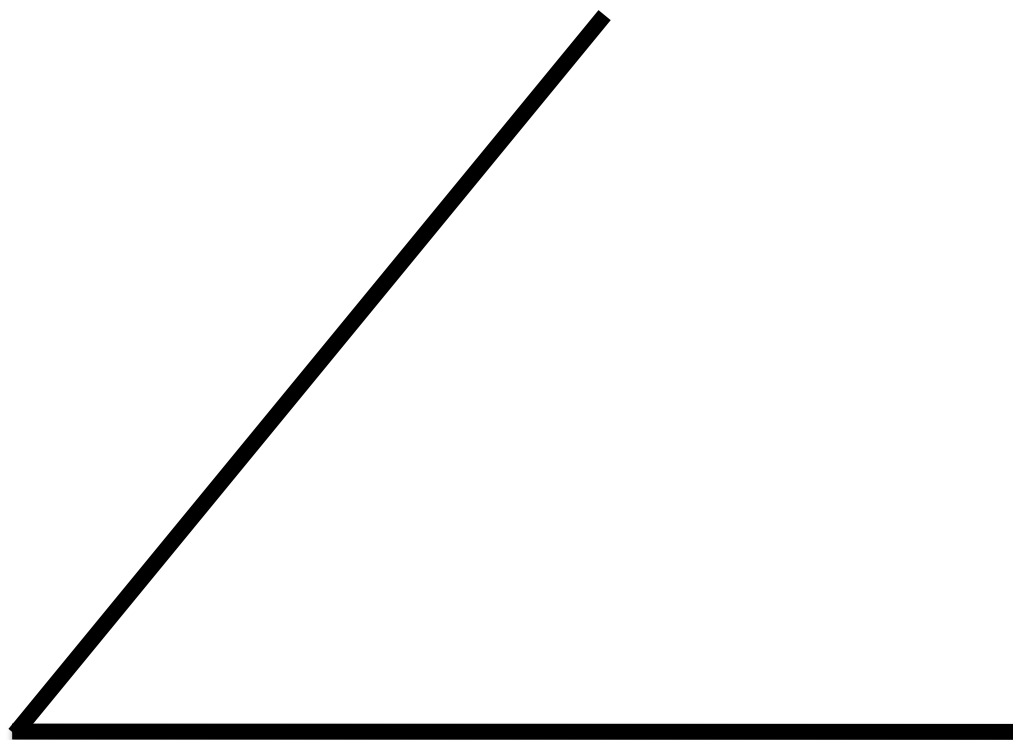


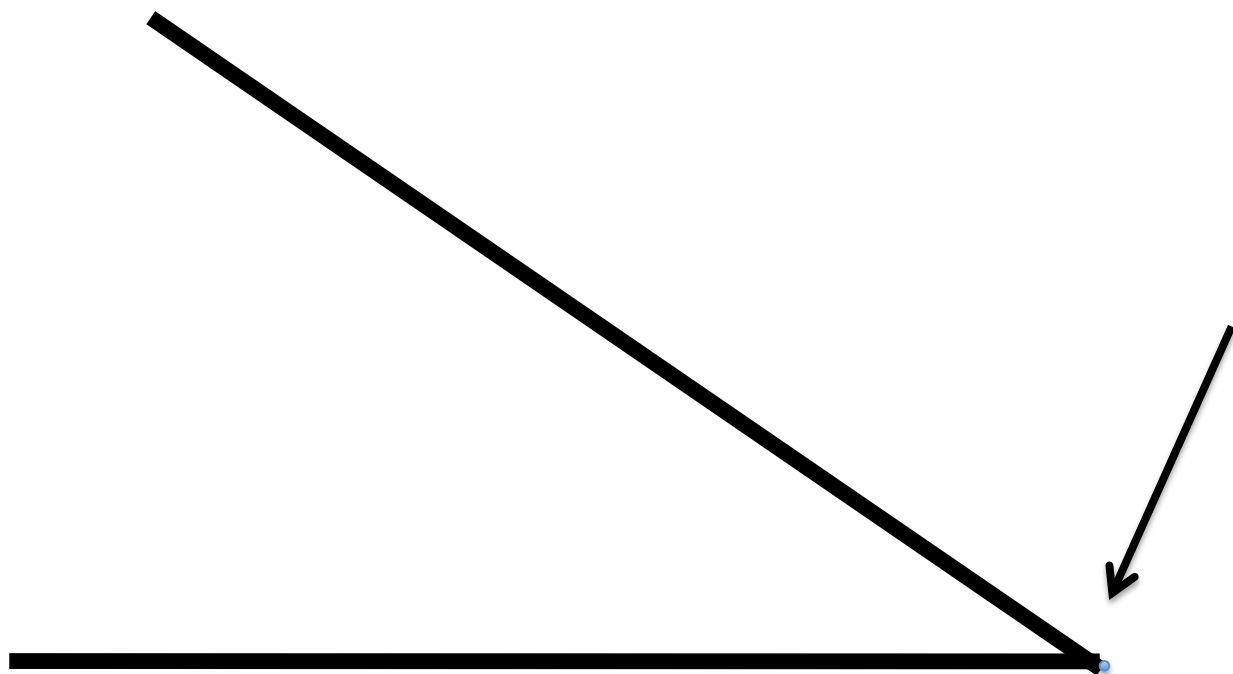














right-angled  
triangle

a triangle that  
has a right  
angle ( $90^\circ$ )

isosceles  
triangle

a triangle with  
two equal sides

equilateral  
triangle

a triangle with  
all three sides  
of equal length

right angle

an angle which  
is equal to  $90^\circ$

acute angle

an angle less  
than  $90^\circ$

obtuse  
angle

an angle that is  
more than  $90^\circ$   
but less  
than  $180^\circ$

vertex

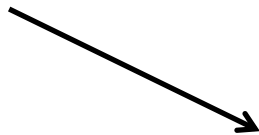
a point where  
two or more  
straight lines  
meet

straight  
angle

an angle that  
measures  $180^\circ$

# Move and Match for Memorization

Geometry Set: Lines



point

line

ray

line

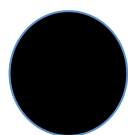
segment

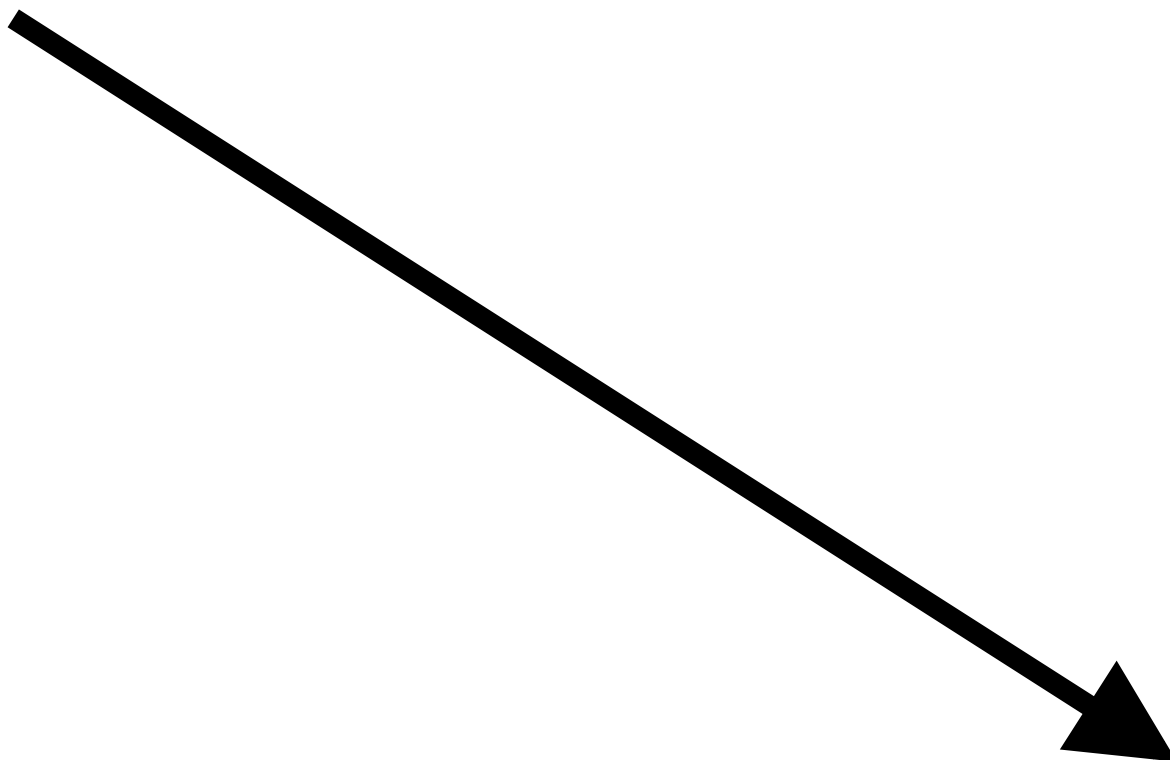
intersecting  
lines

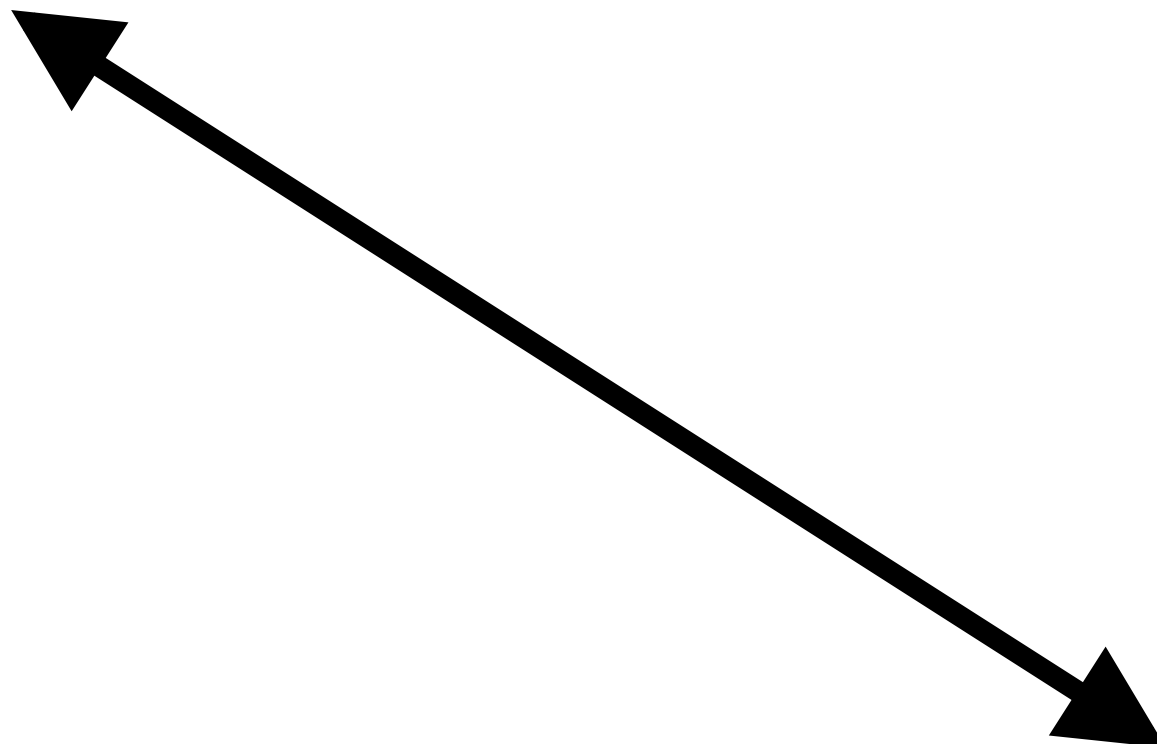
parallel  
lines

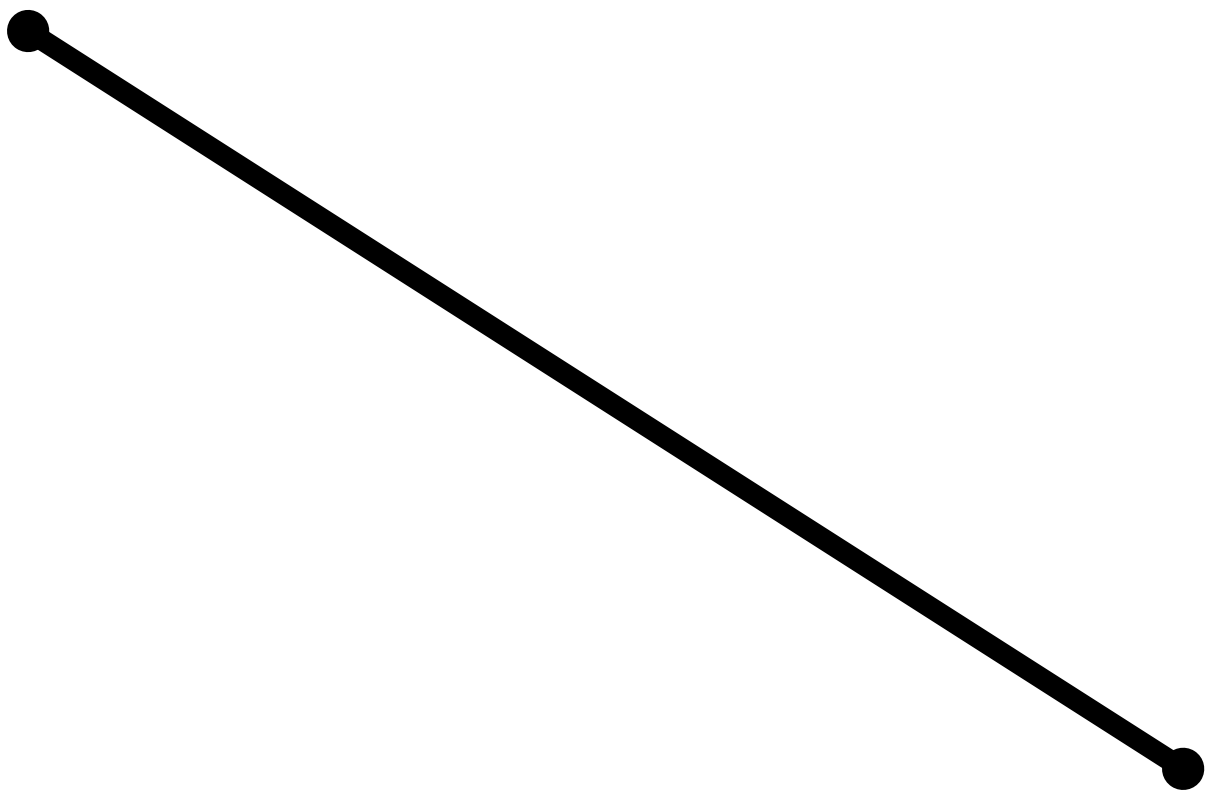
angle

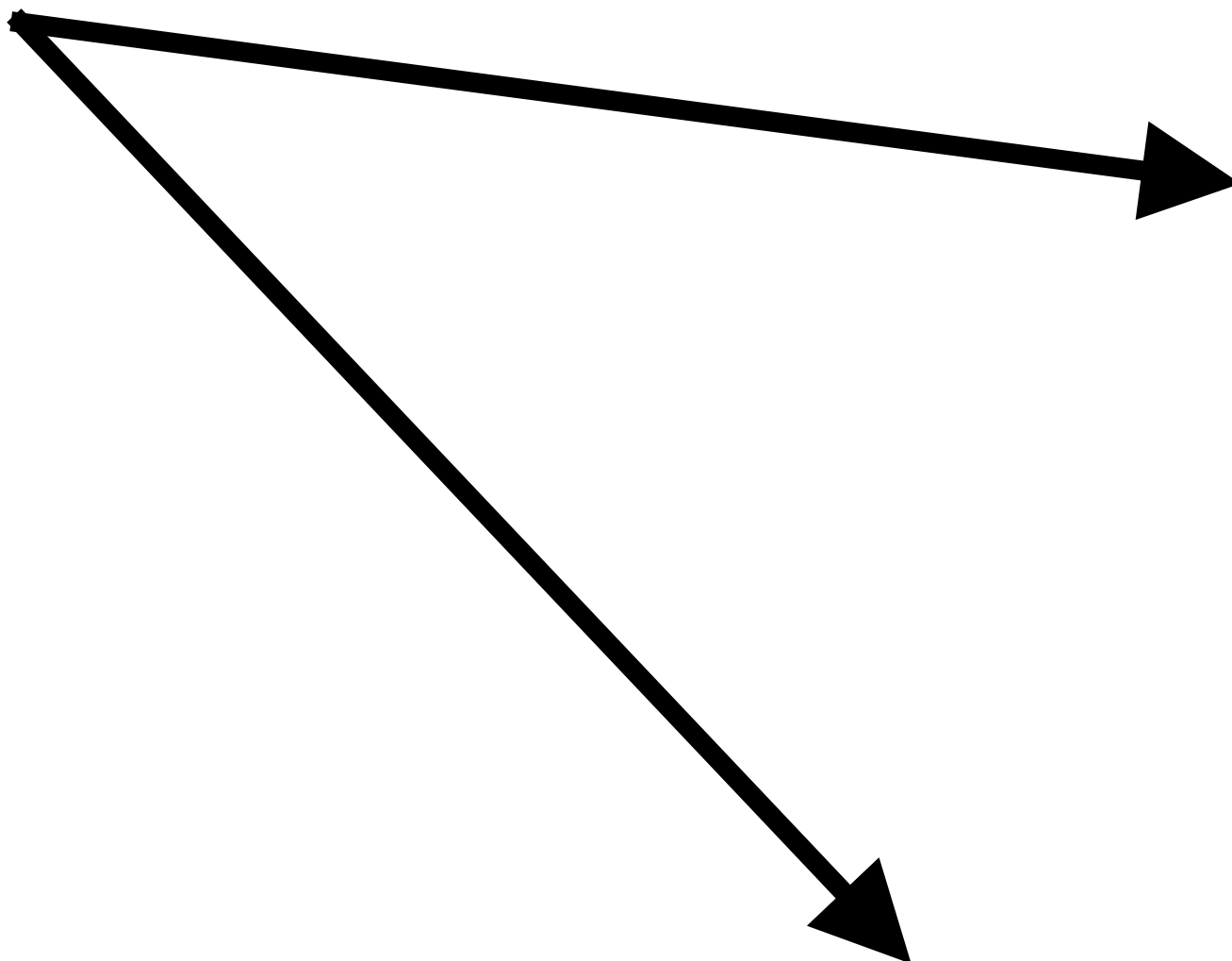
perpendicular  
lines

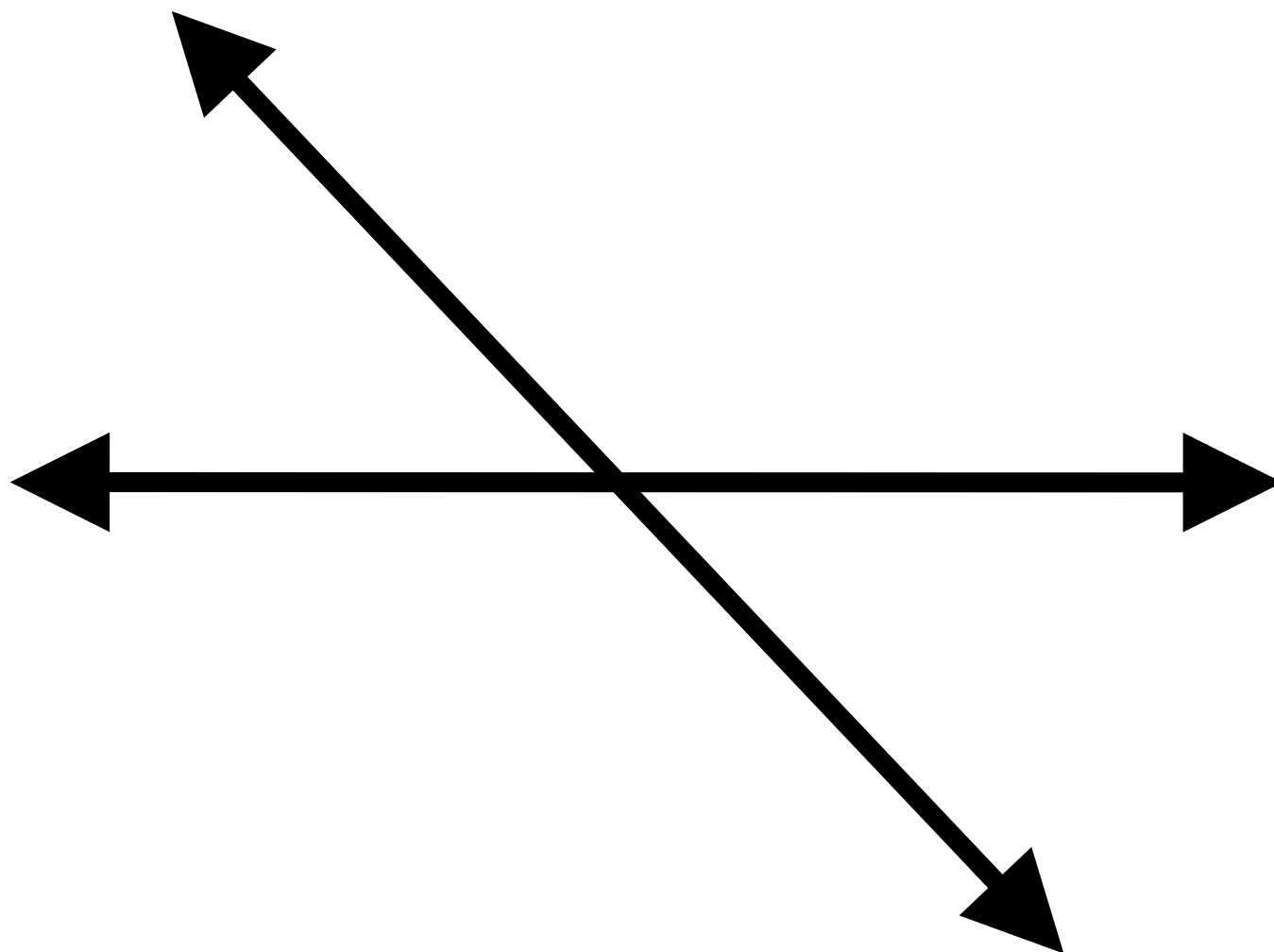


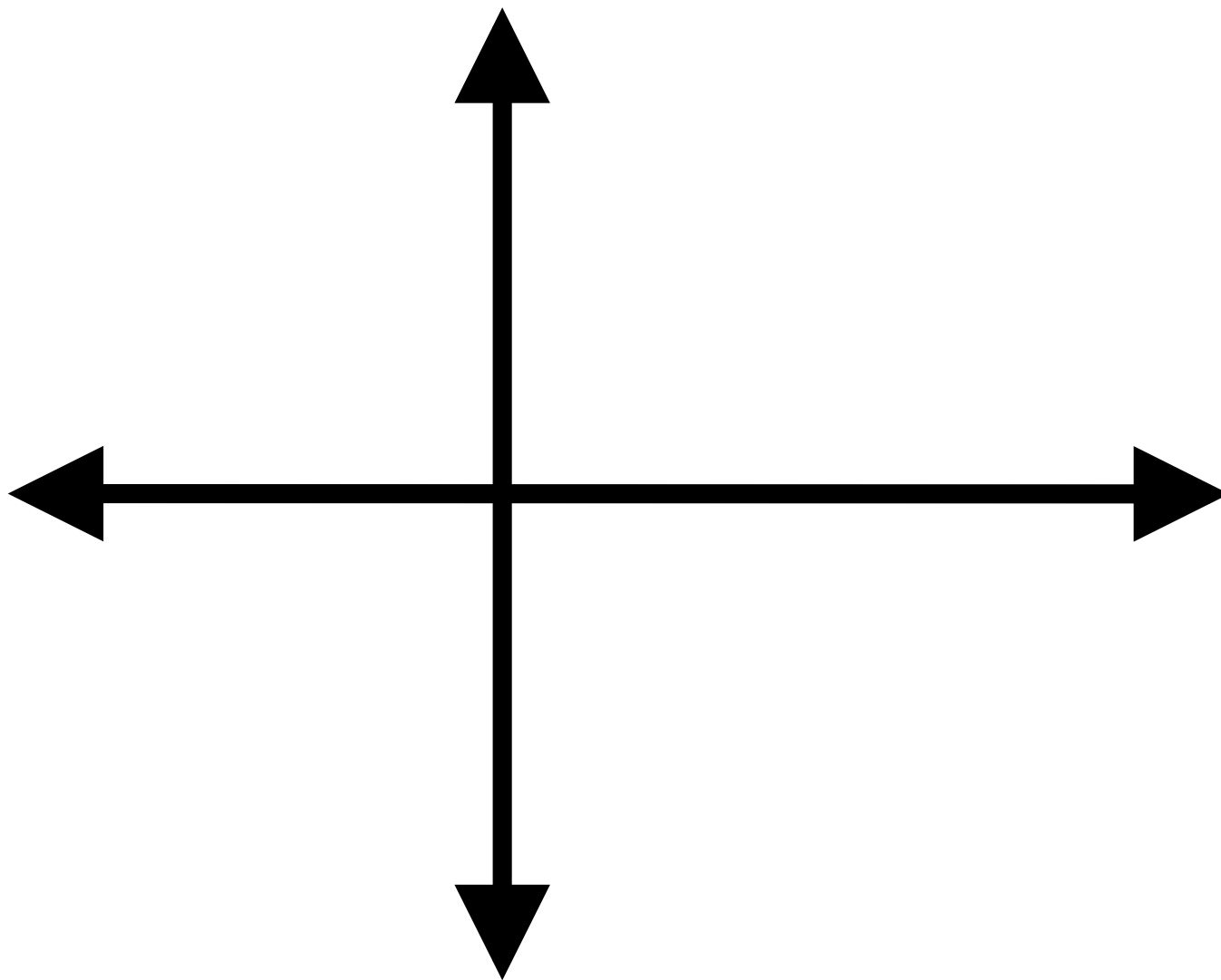














an exact  
location  
in space

It is straight and  
extends in both  
directions infinitely.

a part of a line with  
two endpoints

a part of a line with  
one endpoint that  
extends forever in  
one direction

two rays joined  
at a common  
endpoint called  
the vertex

lines or segments  
that meet or cross  
at one point

two lines that never  
meet and are always  
the same  
distance apart

lines that are at  
right angles ( $90^\circ$ )  
to each other